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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,887

11/13/2003

Jacqueline E. Heard

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12/11/2007

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EXAMINER

KRUSE, DAVID H

ART UNIT

PAPER NUMBER

1638

MAIL DATE

DELIVERY MODE

12/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/714,887	Applicant(s) HEARD ET AL.	
	Examiner David H. Kruse	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2006 and 25 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13 and 35-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13 and 35-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/13/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II and SEQ ID NO: 3 encoding SEQ ID NO: 4 in the reply filed on 13 June 2005 is acknowledged.
2. Original claims 1-12 and 14-34 have been cancelled.
3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR § 1.48(b) and by the fee required under 37 CFR § 1.17(i).

Drawings

4. The petition filed on 13 November 2003 under 37 CFR § 1.84(a)(2) for accepting color photographs and color drawings is granted.
5. The drawings are objected to because they are not in compliance with the Sequence Rules, and the brief description of the drawings in the specification does not contain sequence identifiers for the sequences in the figures. Appropriate correction is required and will not be held in abeyance.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. § 119(e) or under 35 U.S.C. § 120, 121, or 365(c) is acknowledged. Applicant has not

complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. §§ 119(e) and 120 and 121 as follows:

The later-filed application must be an application for a patent for an invention, which is also disclosed, in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. § 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of many of the prior-filed applications listed in the claim of priority fail to provide adequate written description support or enablement in the manner provided by the first paragraph of 35 U.S.C. § 112 for one or more claims of this application. The priority for the instant claims is given the filing date of U. S. Provisional Application 60/336,049 filed 19 November 2001 (see SEQ ID NO: 185 and 186). If the Applicants feel the Examiner is in error then Applicants should point out where in each of the prior filed applications each of the claim limitations can be found.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 35 rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled

in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner cannot find written description support for the subject matter in the instant claim in either the specification or the original claims. This is a New Matter rejection.

8. Claims 13 and 35-43 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants claim a transgenic plant that is more tolerant to a water deprivation treatment than a control plant comprising a recombinant polynucleotide encoding a polypeptide having the property of regulating water deprivation wherein the recombinant polynucleotide "specifically" hybridizes to the complement of SEQ ID NO: 3 under recited stringent conditions.

Applicants describe polynucleotides that encode SEQ ID NO: 4 having the property of regulating water deprivation in a transgenic plant.

Applicants do not describe the genus of polynucleotides, or plants transformed therefrom, wherein the recombinant polynucleotide "specifically" hybridizes to the complement of SEQ ID NO: 3 under recited stringent conditions.

Hence, it is unclear that Applicants were in possession of the invention as broadly claimed.

See *University of California V. Eli Lilly and Co.*, 43 USPQ2d 1398 (Fed. Cir. 1997), which teaches that the disclosure of a process for obtaining cDNA from a particular organism and the description of the encoded protein fail to provide an adequate written description of the actual cDNA from that organism which would encode the protein from that organism, despite the disclosure of a cDNA encoding that protein from another organism. At 1406, the court states that a description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus.

9. Claims 13 and 35-43 are rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for a water deprivation tolerant transgenic plant comprising a recombinant polynucleotide that encodes SEQ ID NO: 4, does not reasonably provide enablement for a water deprivation tolerant transgenic plant comprising a recombinant polynucleotide that hybridizes to the complement of SEQ ID NO: 3. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Applicants claim a transgenic plant that is more tolerant to a water deprivation treatment than a control plant comprising a recombinant polynucleotide encoding a polypeptide having the property of regulating water deprivation wherein the recombinant

polynucleotide “specifically” hybridizes to the complement of SEQ ID NO: 3 under recited stringent conditions.

Applicants teach polynucleotides that encode SEQ ID NO: 4 having the property of regulating water deprivation in a transgenic plant.

Applicants do not teach the genus of polynucleotides, or plants transformed therefrom, wherein the recombinant polynucleotide “specifically” hybridizes to the complement of SEQ ID NO: 3 under recited stringent conditions.

In re Wands, 858F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988) lists eight considerations for determining whether or not undue experimentation would be necessary to practice an invention. These factors are: the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples of the invention, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art, and the breadth of the claims.

The number of polynucleotides encoding a protein that can be isolated by hybridization using the conditions in the instant claims is vastly larger than those Applicants have taught one of skill in the art how to make and use in the instant application. The sequence taught by Applicants, SEQ ID NO: 3, is a GRAS type transcription factor (see page 29 of the instant application). The number of polynucleotides within the scope of the instant claims is vastly greater and not limited to any specific function. Tolerance to the recited water deprivation types, drought, salt or sucrose, is controlled by many different physiological pathways. Hence, given the

limited guidance by Applicants, the nature of the invention, the breadth of the claims and the quantity of experimentation that would be necessary, it would have required undue trial and error experimentation by one of skill in the instant art at the time of Applicants' invention to make and use as broadly claimed.

10. Claims 13 and 35-43 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

At line 7 of claim 13, the phrase "that specifically hybridizes to the complement" renders the claim indefinite because it is unclear what the metes and bounds of this limitation are. The recited "stringent conditions" would not bind a nucleic acid sequence "specifically", this would be readily evident to one of skill in the instant art. Those claims dependent from claim 13 are also indefinite for the same reasons.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 13 and 35-43 are rejected under 35 U.S.C. § 102(b) as being anticipated by Thomashow *et al* (U.S. Patent 5,065,705) taken with the evidence of Fourgoux-Nicol *et al* (1999, Plant Molecular Biology 40 :857-872).

Thomashow *et al* disclose a transgenic plant that is more tolerant to water deprivation treatment than a control plant at column 14. Thomashow *et al* disclose a

recombinant nucleic acid encoding the CBF1 transcription factor that would hybridize to the complement of Applicants' SEQ ID NO: 3. Fourgoux-Nicol *et al* (1999, Plant Molecular Biology 40 :857-872) teach the isolation of a 674bp fragment using a 497bp probe incorporating stringent hybridization conditions comprising three consecutive 30 minute rinses in 2X, 1X and 0.1X SSC with 0.1% SDS at 65⁰C (page 859, left column, 2nd paragraph). Fourgoux-Nicol *et al* also teach that the probe and isolated DNA fragment exhibited a number of sequence differences comprising a 99bp insertion within the probe and a single nucleotide gap, while the DNA fragment contained 2 single nucleotide gaps and together the fragments contained 27 nucleotide mismatches. Taking into account the insertions, gaps and mismatches, the longest stretch of contiguous nucleotides to which the probe could hybridize consisted of 93bp of DNA (page 862, Figure 2).

While Thomashow *et al* are silent about the specific types to water deprivation tolerance, the claimed tolerance types appears to be inherent in the disclosure of the prior art. Failure of those skilled in the art to contemporaneously recognize an inherent property, function or ingredient of a prior art reference does not preclude a finding of anticipation, Atlas Powder Co. v. IRECO, Inc., 190 F.3d 1342, 1349, 51 USPQ2d 1943, 1948 (Fed. Cir. 1999). The Office does not have the facilities and resources to provide the factual evidence needed in order to establish that the product of the prior art does not possess the same, material, structural and functional characteristics of the claimed product. In the absence of evidence to the contrary, the burden is on the Applicant to provide that the claimed product is different from those taught by the prior art and to

establish patentable differences. See *In re Best* 562F.2d 1252 USPQ 430 (CCPA 1977) and *Ex parte Gray* 10 USPQ 2d 1922 (PTO Bd. Pat. App. & Int. 1989).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 13 and 35-51 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pysh *et al* (1999, The Plant Journal 18(1): 111-119).

Pysh *et al* teach a recombinant polynucleotide encoding amino acids 158-482 of instant SEQ ID NO: 4, in *SCARECROW-LIKE 3* (Table 1 on page 113 and Figure 1 on page 114). Pysh *et al* teach that *SCL3* is expressed in roots (Figure 3 on page 116).

Pysh *et al* do not teach transgenic plants or tolerance to water deprivation treatment.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of Applicants' invention to use the teachings of Pysh *et al* to isolate the complete *SCL3* transgene and transform a plant therewith. The use of a *SCL3* transgene to modify root architecture in a transgenic plant would have been obvious to one of ordinary skill in the instant art. Pysh *et al* teach that SCR genes regulate root development (see page 111, right column, to page 112, left column). At the time of Applicants' invention, one of ordinary skill in the art would have had a reasonable

expectation of success in isolating the complete *SCL3* transgene and produce a transgenic plant therewith.

Conclusion

15. No claims are allowed.
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David H. Kruse, Ph.D. whose telephone number is (571) 272-0799. The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached at (571) 272-0975. The central FAX number for official correspondence is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group Receptionist whose telephone number is (571) 272-1600.

**DAVID H. KRUSE, PH.D.
PRIMARY EXAMINER**

A handwritten signature in black ink, appearing to read "David H. Kruse", with a stylized flourish at the end.

David H. Kruse, Ph.D.
10 December 2007

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17. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

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